
 forming a step portion on the one side of the first substrate on a peripheral of the first substrate, the step portion being substantially equal in height to the microlenses, the width of the step portion being wider than the entire width of the sealing material,;  
 adhering the transparent cover to the lens array substrate;  
 superposing the first substrate over the second substrate to face the step portion with the sealing material therebetween; and  
 curing the sealing material while pressing the first substrate toward the second substrate so that a width of the step portion is wider than a width of the sealing material.

### REMARKS

Claims 1-5, 7, 8 and 10-26 are pending. By this amendment, claims 1, 4, 7, 10, 12-16 and 24 are amended. Applicant appreciates the courtesies extended to Applicant's representative by Examiner Nguyen during the October 24 interview.

The attached Appendix includes marked-up copies of each rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

Reconsideration based on the following remarks is respectfully requested.

#### **I. The Claims Define Patentable Subject Matter**

The July 1, 2002 Office Action rejects claims 1-5, 7, 8 and 10-24 under 35 U.S.C. §103(a) over "applicants admitted art" (APA) shown in Fig. 11 of the present application in view of Toshimichi et al. (JP 8-328002). Examiner Nguyen appreciated during the October 24 interview that the applied references do not disclose or even suggest the claimed invention. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

During the interview, Examiner Nguyen asserted that the claimed invention is disclosed in a newly discovered reference, Ray et al. (U.S. Patent No. 5,701,008). However, as discussed below, Ray does not disclose or even suggest the claimed invention.

Ray does not disclose or suggest an electrooptical device including, *inter alia*, a first substrate including a step portion, the width of the step portion being wider than the entire width of a sealing material, as recited in claim 1, and as similarly recited in claims 4, 7, 10, 12-16 and 24.

Instead, the width of the step portion in Ray is wider than the width of sealing material only at portions of the sealing material. For example, the width of the step portion in Ray is wider than the width of the sealing material only at the upper portions of the sealing material.

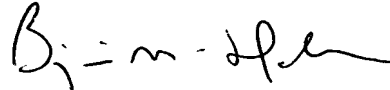
For at least these reasons, it is respectfully submitted that claims 1, 4, 7, 10, 12-16 and 24 are patentable over the applied references. The dependent claims are likewise patentable over the applied references for at least the reasons discussed as well as for the additional features they recite.

## **II. Conclusion**

In view of the foregoing, applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

Should the Examiner believe anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact applicants undersigned representative at the telephone number listed below.

Respectfully submitted,



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ATTACHMENT:  
Appendix

Date: November 13, 2002

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APPENDIX

The following is a marked-up version of the amended claims:

1.     (Twice Amended) An electro-optical device comprising:
  - a pair of substrates including a first substrate and a second substrate adhered together with a sealing material;
  - an electro-optical material enclosed between said pair of substrates; and
  - a plurality of pixels formed in a matrix disposed within said pair of substrates, said first substrate including:
    - 1) a lens array substrate provided with a plurality of convex microlenses with one microlens corresponding to each of said plurality of pixels,
    - 2) a step portion being substantially equal in height to said microlenses throughout a region completely overlapping said sealing material, the width of the step portion being wider than the entire width of the sealing material, and
    - 3) a transparent cover adhered to the lens array substrate with an adhesive that covers said microlens and said step portion.
4.     (Twice Amended) A method for fabricating an electro-optical device which comprises a pair of substrates including a first substrate and a second substrate, a liquid crystal enclosed between the pair of substrates, and a plurality of pixels formed in a matrix disposed within said pair of substrates, said first substrate including a lens array substrate, said method comprising:
  - forming a plurality of convex microlenses with one microlens corresponding to each of said plurality of pixels on said lens array substrate;
  - forming a step portion substantially equal in height to said microlenses throughout a periphery of said first substrates;

adhering a transparent cover to said lens array substrate with an adhesive to cover said microlenses and said step portion;

forming a sealing material, the width of the step portion being wider than the entire width of the sealing material;

superposing the first substrate on the second substrate to face said step portion with the sealing material therebetween, the periphery of the first substrate completely overlapping the sealing material; and

curing said sealing material while pressing said first substrate on the second substrate.

7. (Twice Amended) A method for fabricating an electro-optical device which comprises a pair of substrates including a first substrate and a second substrate, an electro-optical material enclosed between the pair of substrates, and a plurality of pixels formed in a matrix disposed within said pair of substrates, said first substrate including a lens array substrate, said method comprising:

forming a plurality of convex microlenses with one microlens corresponding to each of said plurality of pixels on said lens array substrate;

forming a step portion substantially equal in height to said microlenses throughout a periphery of said lens array substrate;

bonding a transparent cover to said lens array substrate with an adhesive so as to cover said microlenses and said step portion;

forming a sealing material, the width of the step portion being wider than the entire width of the sealing material;

superposing the first substrate on the second substrate to face said step portion with said sealing material therebetween, the periphery of the first substrate completely overlapping the sealing material; and

curing said sealing material while applying pressure from an exterior of said pair of substrates.

10. (Twice Amended) An electro-optical device comprising:

a pair of substrates including a first substrate and a second substrate adhered together with a sealing material; and

an electro-optical material enclosed between said pair of substrates, said second substrate having a plurality of scanning lines, a plurality of data lines intersecting said plurality of scanning lines, a pixel having a switching device connected to each of said scanning lines and each of said data lines, and a pixel electrode connected to said switching device, and the first substrate including:

- 1) a lens array substrate provided with a plurality of convex microlenses with one microlens formed corresponding to each of said pixel,
- 2) a step portion being substantially equal height to said microlenses throughout a region completely overlapping said sealing material, the width of the step portion being wider than the entire width of the sealing material, and
- 3) a transparent cover adhered to the lens array substrate with an adhesive that covers said microlenses and said step portion.

12. (~~Twice~~ Three Times Amended) An electro-optical device, comprising:

a pair of substrates including a first and a second substrate adhered together with a sealing material;

an electro-optical material enclosed between said pair of substrates; and  
a plurality of pixels formed in a matrix disposed within said pair of substrates,  
said first substrate including:

1) a lens array substrate provided with a plurality of convex microlenses with one microlens corresponding to each of said plurality of pixels, the plurality of microlenses being provided at one side of the first substrate,

2) a step portion formed on the one side of the first substrate throughout a region completely overlapping said sealing material, the width of the step portion being wider than the entire width of the sealing material, and

3) a transparent cover adhered to the lens array substrate with an adhesive that covers said microlenses and said step portion.

13. (Twice Amended) A method for fabricating an electro-optical device which comprises a pair of substrates including a first substrate and a second substrate, a liquid crystal enclosed between the pair of substrates, and a plurality of pixels formed in a matrix disposed within said pair of substrates, said first substrate including a lens array substrate, said method comprising:

forming a plurality of convex microlenses with one microlens corresponding to each of said plurality of pixels on said lens array substrate, the plurality of microlenses being formed at one side of the first substrate;

forming a step portion on the one side of the first substrate throughout a periphery of said first substrate;

adhering a transparent cover to said lens array substrate with an adhesive to cover said microlenses and said step portion;

forming a sealing material;

superposing the first substrate on the second substrate to face said step portion with the sealing material therebetween, the periphery of the first substrate completely overlapping the sealing material, the width of the step portion being wider than the entire width of the sealing material; and

curing said sealing material while pressing said first substrate on the second substrate.

14. (Twice Amended) A method for fabricating an electro-optical device which comprises a pair of substrates including a first substrate and a second substrate, an electro-optical material enclosed between the pair of substrates, and a plurality of pixels formed in a matrix disposed within said pair of substrates, said first substrate including a lens array substrate, said method comprising:

forming a plurality of convex microlenses with one microlens corresponding to each of said plurality of pixels on said lens array substrate, the plurality of microlenses being formed on one side of the first substrate;

forming a step portion on the one side of the first substrate throughout a periphery of said first substrate;

bonding a transparent cover to said lens array substrate with an adhesive so as to cover said microlenses and said step portion;

forming a sealing material;

superposing the first substrate on the second substrate to face said step portion with the sealing material therebetween, the periphery of the first substrate completely overlapping the sealing material, the width of the step portion being wider than the entire width of the sealing material; and

curing said sealing material while applying pressure from an exterior of said pair of substrates.

15. (~~Twice~~ Three Times Amended) An electro-optical device, comprising:

a pair of substrates including a first and a second substrate adhered together with a sealing material;



an electro-optical material enclosed between said pair of substrates, said second substrate having a plurality of scanning lines, a plurality of data lines intersecting said plurality of scanning lines, a pixel having a switching device connected to each of said scanning lines and each of said data lines, and a pixel electrode connected to said switching device, and the first substrate including:

- 1) a lens array substrate provided with a plurality of convex microlenses with one microlens corresponding to each of said plurality of pixels, the plurality of microlenses being formed on one side of the first substrate,
- 2) a step portion formed on the one side of the first substrate throughout a region completely overlapping said sealing material, the width of the step portion being wider than the entire width of the sealing material, and
- 3) a transparent cover adhered to the lens array substrate with an adhesive that covers said microlenses and said step portion.

16. (Twice Amended) An electro-optical device, comprising:

- a first substrate;
  - a second substrate;
  - a sealing material that adheres the first and second substrates together;
  - an electro-optical material disposed between the first and second substrates;
- and
- a plurality of pixels arranged in a matrix and disposed between the first and second substrates;
- the first substrate including:
- a lens array substrate that defines a plurality of convex microlenses,

a step portion formed on the one side of the first substrate in a region overlapping the sealing material, the step portion being substantially equal in height to the microlenses, a width of the step portion being wider than the entire a-width of the sealing material,

a transparent cover, and

an adhesive that adheres the transparent cover to the lens array substrate.

24. (Twice Amended) A method of manufacturing an electro-optical device that includes a first substrate having a lens array substrate and a transparent cover, a second substrate, an electro-optical material disposed between the first and second substrates, sealing material, and a plurality of pixels arranged in a matrix disposed between the first and second substrates, the method comprising:

forming a plurality of microlenses on the lens array substrate;

forming a step portion on the one side of the first substrate on a peripheral of the first substrate, the step portion being substantially equal in height to the microlenses, the width of the step portion being wider than the entire width of the sealing material;

adhering the transparent cover to the lens array substrate;

superposing the first substrate over the second substrate to face the step portion with the sealing material therebetween; and

curing the sealing material while pressing the first substrate toward the second substrate so that a width of the step portion is wider than a width of the sealing material.